IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: :

PASCAL ARNAUD ET AL : EXAMINER: HUANG, E.

SERIAL NO.: 09/049,927 :

FILED: MARCH 30, 1998 : GROUP ART UNIT: 1625

FOR: ANHYDROUS COSMETIC OR DERMATOLOGICAL COMPOSITION CONTAINING THE COMBINATION OF A SILICONE OIL AND A WAX MADE FROM AN ETHYLENE HOMOPOLYMER OR COPOLYMER

DECLARATION UNDER 37 C.F.R. 1.132

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

I, Pascal ARNAUD, hereby declare:

1. I am employed by L'ORÉAL as the Head of the Foundation and Powder Laboratory and have experience in the field of silicone oil-based compositions as well as wax-based compositions.

2. I understand the French and English languages.

3. I am one of the inventors named on the above-identified application.

4. The following observations and experiments were carried out by me or under my supervision and control.

5. In connection with the Opposition proceedings in Europe involving the European patent corresponding to the above-referenced application, several experiments were conducted. These experiments, which are reflected in the documents attached at Tabs A-F hereto, demonstrate the advantageous results achieved by the invention claimed in the above-referenced application.

6. As used in my patent application, the term "homogeneous mixture" signifies a mixture in which the various constituents are distributed in identical fashion at all points within the mixture (page 1, lines 20-23). This term "homogeneous" is used with regard to the examples that follow to mean (1) the wax and the oil are hot-miscible, the wax being in a molten form; and (2) the wax is homogeneously recrystallized in the oil phase after cooling. Compatible ingredients provide a homogeneous mixture thereof.

7. In the Examples that follow the wax and the oil are hot-miscible when the mixture of the oil and of the molten wax remains clear. When the molten wax/oil mixture is not clear, then it can be concluded that the wax and the oil forming the mixture are not compatible with each other. After cooling, the resulting composition will not be homogeneous. When the molten wax/oil mixture remains clear it does not mean necessarily that the oil and the wax are compatible.

8. In Tab A, as part of a response in the European Opposition proceeding, L'ORÉAL submitted "Annex A" wherein Dow Corning 556 Fluid (phenyl trimethicone) was combined with various ethylene homo- and co- polymers to determine if these ingredients were hot-miscible. Hot miscibility in Tab A is indicated with an "S." Non-hot miscibility is indicated with an "I." The results in Tab A reflect that phenyl trimethicone is hot-miscible with ethylene homopolymer waxes having a molecular

weight of 500 (Polywax 500) and 1000 (Polywax 1000), but that it is not hot-miscible, therefore not compatible, with an ethylene homopolymer wax having a molecular weight of 2000 (Polywax 2000), an ethylene/acrylic acid copolymer (AC-540), or an ethylene/vinyl acetate copolymer (AC-400).

9. In Tab B, as part of a response filed by L'ORÉAL in the European Opposition, Polywax 655 (a polyethylene wax having a molecular weight of 700) was combined with various silicone oils to determine if these ingredients were hot-miscible. Again, hot miscibility is indicated with an "S," whereas non-hot miscibility is indicated with an "I." The results in Tab B reflect that Polywax 655 is hot-miscible with phenyl trimethicone, but that it is not hot-miscible, therefore not compatible, with silicone oils diphenyldimethicone and phenyldimethicone.

10. In Tab C, as part of a response filed by L'ORÉAL in the European Opposition, phenyl trimethicone was combined with candelilla wax as well as polyethylene waxes having various molecular weights (in Annex II). Also, two polyethylene waxes having different molecular weights were combined with phenyl trimethicone and polyphenyltrimethylsiloxy-diphenylsiloxane (SF 558) (in Annex III). Compatibility is indicated with an "C," whereas incompatibility is indicated with an "I." The results in Tab C reflect that homogeneous compositions resulted when phenylated silicone oils of a particular structure (phenyl trimethicone ) were combined with polyethylene waxes having a molecular weight of 500 (Polywax 500) and 700 (Polywax 655) but not with candelilla wax.

11. In Tab D, Polywax 500 was combined with phenyl trimethicone or polyphenyltrimethylsiloxydimethylsiloxane (Belsil 1000) (in part I); candelilla wax or

Polywax 500 was combined with phenyl trimethicone (in part II); and polyphenyltrimethylsiloxy-diphenylsiloxane (SF 558) (see example 1 of my patent) or polyphenyltrimethylsiloxydimethylsiloxane (Belsil 1000) was combined with a mixture of polyethylene wax having molecular weight of 655 (Performalen 655) and of polyéthylene wax having a molecular weight of 1100 (AC 1702), a polyethylene wax having a molecular weight of 2000 (Performalen 2000), and a Fischer-Tropsch wax. The results in Tab D reflect that homogeneous, cosmetically acceptable compositions resulted when phenylated silicone oils of a particular structure (that is, SF 558) were combined with a mixture of a polyethylene wax having a molecular weight of 655 and a polyethylene wax having a molecular weight of 1100 (AC 1702).

12. In Tab E, as part of a response filed by L'ORÉAL in the European Opposition, experiments were conducted with various silicone oils and various waxes to determine whether these ingredients were hot-miscible. The results reflected in Tab E indicate that a clear mixture is obtained when polyethylene wax having a molecular weight of 1000 is combined with phenylated silicone oil SF 558 (test 3) and when polyethylene wax having a molecular weight of 500 is combined with phenyl trimethicone (test 4).

13. In Tab F (examples 1 to 7), various oils were combined with various waxes to determine whether these ingredients were compatible. Here, "C" reflects compatibility, and "I" reflects incompatibility. These results, also, demonstrate that compatibility results when polyethylene waxes having a molecular weight less than about 1000 (Performalene 1000) are combined with a phenyltrimethicone (DC 556), whereas for example, candelilla wax and Polywax 2000 did not. Further shown is the compatibility of

various polyethylenes in mixtures of phenyltrimethicone (DC 556) with other oils (DC 200, sesame oil).

14. In connection with the Opposition proceedings in Japan involving the Japanese patent corresponding to the above-referenced application, several experiments were conducted. These experiments, which are reflected in Tab G attached hereto, demonstrate the advantageous results achieved by the invention claimed in the above-referenced application.

15. In Tab G, ceresine wax and polyethylene waxes having various molecular weights were combined with phenyl trimethicone or dimethylpolysiloxane. Similar to the results obtained in connection with the European Opposition proceedings, these results indicate that homogeneous compositions resulted when a polyethylene wax having a molecular weight of 500 was combined with a methylphenylpolysiloxane (KF 56).

16. Furthermore, while conducting research prior to filing the above-referenced application, I combined various oils with various waxes to determine which combinations yielded cosmetically acceptable, homogeneous compositions. Such experimentation is reflected in the laboratory notebook pages attached hereto at Tab H. In these pages, "C" reflects compatibility, and "I" reflects incompatibility. As with the results achieved in connection with the Opposition proceedings mentioned above, these results indicate that compatibility results from the combination of a low molecular weight ethylene polymer wax (for example, a molecular weight up to 1100 (AC1702) and a phenylated oil of a particular structure (SF558) or a copolymer (Petrolite CP-7) and a phenylated silicone oil of a particular structure (DC 556)).

17. From the results set forth in Tabs A-H and discussed in paragraphs 5-17 above, it is apparent to me that compatibility of ingredients (including homogeneity) occurs with respect to silicone oils and waxes only when the silicone oil is a phenylated silicone oil of a particular structure and the wax is a low weight ethylene polymer. The structure of the phenylated silicone oil and the physical requirements of the ethylene polymer wax set forth in the pending claims of the above-referenced application achieve such compatibility and homogeneity. In my experience, nothing in the prior art would have predicted or suggested this surprising and important result.

18. Achieving compatibility and homogeneity in compositions containing a wax and a silicone oil is significant in the cosmetics field. For example, having such compatibility enables production of cosmetic compositions containing the desired wax and the desired oil without the need to add a co-solvent (the purpose of which would be to make the ingredients compatible). Not needing to add a co-solvent simplifies production of cosmetic products. Moreover, having such compatibility enables production of silicone oil-based cosmetic products without being limited by a restrictive range of proportions for the wax and silicone oil: in other words, a wider range of wax to oil proportions can be used. That compositions containing both a low molecular weight ethylene polymer wax and a phenylated silicone oil of the claimed structure would possess such beneficial compatibility and homogeneity properties was unexpected and surprising at the time of the invention claimed in the above-referenced application.

19. Finally, at the time the above experiments were performed, I believed the molecular weight of certain waxes from Allied Chemical (designated AC- ) was as follows: AC 1702 was 1100; and AC 617A was 1500. This belief is reflected in various

places in Tabs A-H such as, for example, Annex A of Tab A, Annex III of Tab C, and page 49 of Tab H (my laboratory notebook pages).

20. I believe that I derived my understanding concerning the molecular weight of Allied Chemical's waxes such as AC-1702 and AC 617A from the table which is attached hereto at Tab I. An internal L'Oréal raw material database contains similar information regarding the molecular weights of these waxes. However, I do not know the origin of the molecular weights identified for theses waxes in either the table at Tab I or in this internal database.

21. In early September 2002, I realized that an eight-page document created by Allied Chemical, the manufacturer of the AC waxes I used in the above-described examples, reports that AC 617A has a number molecular weight of 2057, and therefore, according to this document, would not be part of my invention. This document is attached hereto at Tab J.

22. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believe to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

23. Further deponent sayeth not.

DATE

April 23, 2003

Pascal ARNAUD

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